

NAVAL WAR COLLEGE
Newport, R.I.

Operational Employment of Fast Attack Submarines in
Littoral Warfare-
A Force Multiplier or a Force?

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature _____

14 June 1996

Paper directed by Captain G.W. Jackson
Chairman, Joint Military Operations Department



Faculty Advisor

5/2/96
Date

19960815 048

DTIC QUALITY INSPECTED

DISTRIBUTION STATEMENT A

Approved for public release
Distribution Unlimited

REPORT DOCUMENTATION PAGE

1. Report Security Classification: UNCLASSIFIED			
2. Security Classification Authority:			
3. Declassification/Downgrading Schedule:			
4. Distribution/Availability of Report: DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED			
5. Name of Performing Organization: JOINT MILITARY OPERATIONS DEPARTMENT			
6. Office Symbol: C		7. Address: NAVAL WAR COLLEGE 686 CUSHING ROAD NEWPORT, RI 02841-1207	
8. Title (Include Security Classification): Operational Employment of Fast Attack Submarines in Littoral Warfare-A Force Multiplier or a <u>Force</u> ? (Unclassified)			
9. Personal Authors: Commander Lee O. Moss, USN			
10. Type of Report: FINAL		11. Date of Report: 20 May 1996	
12. Page Count: 21			
13. Supplementary Notation: A paper submitted to the Faculty of the NWC in partial satisfaction of the requirements of the JMO Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.			
14. Ten key words that relate to your paper: SSN, littoral warfare, JTF, maneuver warfare at sea, CINC, levels of war, blue water Navy, strike, mines, ASW			
15. Abstract: With the Navy's shift in focus from blue water operations to littoral warfare, significant effort has been expended toward developing operational concepts that optimize the employment of naval forces, with the emphasis being placed on the Naval Expeditionary Task Force (Carrier Battle group and Amphibious Ready Group). Submarines play a key role in tactical operations within the battle group, but also have the potential to have a significant impact on the operational level of war, if properly utilized by the theater CINC. In order to get the most out of the submarine force, the CINC must balance operational tasks with the tactical needs of the CJTF. If the CINC allows the CJTF to control the SSNs to conduct littoral warfare tasks, he is forfeiting some of his operational flexibility. By viewing the JTF as a unit operating at the operational/tactical level, the CINC can better focus on tasks that need to be accomplished at the operational level. Employment of SSNs at this level of warfare can fill the gap that has been left by the Navy's concentration on littoral warfare. Emphasis on the development of doctrine for littoral warfare need to focus on the value of the SSN at all levels of warfare. Proper integration at all levels will result in maximum flexibility and will restore blue water Navy capabilities to the theater commander.			
16. Distribution / Availability of Abstract: X		Unclassified	Same As Rpt DTIC Users
17. Abstract Security Classification: UNCLASSIFIED			
18. Name of Responsible Individual: CHAIRMAN, JOINT MILITARY OPERATIONS DEPARTMENT			
19. Telephone: 841-6461		20. Office Symbol: C	

Operational Employment of Fast Attack Submarines in Littoral Warfare- A Force Multiplier or a Force?

"In war, the proper objective of the Navy is the enemy's Navy...In giving up the offensive, the Navy gives up its proper sphere." Alfred Thayer Mahan

When the Soviet Union collapsed in 1991, the United States Navy was faced with a dilemma. The fast attack submarine (SSN) force's contribution to the nation's maritime strategy and the resulting force structure had focused on preventing the Soviets from using their navy strategically. With the demise of the "Red Menace", what would be the role of the Navy in national defense and how would the SSNs fit into that role?

The formal answer came in September of 1992. In discussing the shift in national security policy, the Secretary of the Navy wrote "this National Security Strategy has profound implications for the Navy and Marine Corps. Our strategy has shifted from a focus on a global threat to a focus on regional challenges and opportunities"¹ The Navy embarked on a course leading to increased joint operations, response to regional conflicts, and crisis response. The operating concept became littoral warfare, with the littoral region defined as "two segments of the battlespace:

Seaward: The area from the open ocean to the shore which must be controlled to support operations ashore.

Landward: The area inland from shore that can be supported and defended directly from the sea."²

The White Paper ...From the Sea and its successor Forward...From the Sea, in which the Navy further highlights the value of maintaining forward deployed forces that are ready to respond to a crisis, avoid specific reference to platforms and capabilities in discussing naval presence with one exception. "Our basic presence 'building blocks' remain *aircraft carrier battle groups*- with versatile, multipurpose, naval tactical aviation wings- and *amphibious ready*

groups- with special operations-capable Marine expeditionary units. These highly flexible naval formations are valued by the theater commanders precisely because they provide the necessary capabilities forward."³ Where did this leave the fast attack submarine (SSN)?

The answer was found as much in history as in current world events. One of the lessons that the Navy learned from World War II was that various platforms excelled at tasks and missions that were not originally conceived of when the ships were designed. The key to success was in adapting platforms that had mission area flexibility to the initiative of the commanders. Capabilities, bold operational leadership, and non-rigid naval doctrine helped to win the war. The SSN is, was, and always will be a multi-function capable platform. While the U.S. Navy submarine force earned its place in history during World War II primarily for sinking Japanese tonnage, submarines played key roles in covert operations, combat search and rescue, indications and warning, and a variety of other tasks that supported fleet operations. SSNs assigned to a carrier battle group (CVBG) can perform a variety of tactical tasks, often times simultaneously. The first integration of a modern SSN with a battle group occurred during the Yom Kippur War in 1973 when submarines assigned to the 6th fleet were employed in direct support of CVBGs in the Mediterranean Sea.⁴ It is the Navy's practice today to combine a CVBG with an amphibious ready group and deploy that force under the command of a joint task force commander (CJTF). Integration of SSNs into a JTF takes practice, a mutual understanding of capabilities and limitations, concise *flexible doctrine*, and a breaking of the paradigm of the "Silent Service" so that the CJTF can reach out and touch this highly capable, tactical asset.

SSNs, as a force, can play a valuable *operational* role when viewed from

the theater commander (CINC) perspective. It is at this level where the capabilities of the platform, when properly applied, can be translated into operational art. In order for the CINC to get the most from his submarines, he must not only understand their capabilities and limitations, but he must have an appreciation for how to best interface them with the JTF. The true value of the submarine force is achieved if the CINC views SSNs as an operational level force and controls them accordingly. When properly employed, SSNs are not only valuable for littoral Warfare, but they can make up for what is lacking in the theater in blue water capability.

SSN Capabilities

Submarines come to the operating theater in two "varieties". At least two SSNs are deployed as integral members of the JTF. They participate in all phases of the deployment workup and certification to ensure their "seamless" integration into the task force. These SSNs are experts at coordinated operations and communications. In addition to those battle group SSNs, each CINC has other submarines under his operational control. These SSNs worked up independently for deployment to the particular theater under guidelines provided by the CINC through the type commander. They may not be as experienced as the battle group SSNs in coordinated operations, particularly the nuances of communications, but they are fully capable of conducting all of the littoral warfare missions that an SSN could be tasked to perform.

Any of these submarines, employed at either the operational level or operational/tactical level can contribute to the objectives of naval warfare, and help to achieve battlespace dominance, which is the heart of naval warfare.⁵ The tasks that SSNs may be assigned to achieve battlespace dominance include: anti-submarine warfare (ASW), anti-surface warfare (ASUW), strike warfare (STW),

mining, indications and warning (I&W), collection of operational and tactical intelligence, and delivery of special operating forces (SOF). The SSN's stealth enhances the effectiveness of its employment, particularly in a near-land environment. Many of these tasks also apply to operations outside of the littoral region and may be of particular interest to the CINC.

The true value of SSNs lies in their ability to conduct all of these tasks independently and self-sustained in waters controlled by the enemy. *It is the SSN's stealth, mobility, and mix of firepower, when properly exploited, that makes it a true force multiplier at all levels of warfare.*

SSN Limitations

It is important to understand three primary complications associated with the integration of submarines at the operational/tactical and operational levels of warfare. The first obstacle to overcome is that the water in which the submarines operate must be controlled much in the same way that air space is controlled to prevent friendly aircraft from interfering with each other. While this task is normally performed at the operational level, limited control of water to prevent mutual interference can be delegated to the CJTF when it was deemed appropriate providing the JTF is properly staffed.

The second complication deals with command, control, and communications (C3). Real time, two way communications with an SSN can only be accomplished when the SSN is at periscope depth. The SSN can perform other tasks while at periscope depth, but the requirement to communicate can limit its flexibility. The unique environment that an SSN operates in presents significant C3 challenges requiring a continuing effort to improve the SSN's communications capability to keep pace with the rest of the fleet.

A third constraint that the CINC needs to consider in employment of

SSNs is their firepower. The Los Angeles class SSN carries a total of 26 weapons. Those SSNs equipped with the vertical launch system (VLS) can carry an additional 12 Tomahawk cruise missiles, for a total mix of 38. The Seawolf class will carry a mix of 50 weapons, while the current plans for the New Attack Submarine will give it capabilities similar to the Los Angeles class. Unlike surface ships, reloads can only be transferred to the SSN when it is either in port or moored alongside a tender.

Unique Aspects of the Littoral Environment

Naval forces are confronted with new challenges when operating within the littoral region. The seaways in littoral areas are greatly restricted when compared to the blue water environment. This greatly limits the freedom with which naval forces can maneuver and may significantly affect the method in which forces and weapons are employed. Additionally "commanders in battle in the littoral are faced with greatly reduced time for making decisions than is afforded them in open-ocean warfare."⁶

Other characteristics that present challenges, but are highly dependent on the location include the presence of shallow water, adverse acoustic conditions associated with wide variations in turbidity and salinity and the existence of coastal defenses. A CJTF must be capable of adapting to the universal as well as the situational factors and tailor operational concepts accordingly.

Employment of SSNs at the Operational Level vs the Operational/Tactical Level

Operating a submarine force at these two distinctly levels of warfare requires careful consideration of the assigned tasks. By looking at the JTF as a unit with assigned and implied tasks, the CINC can gain a better perspective of how to allocate his SSNs. What follows is a discussion of required tasks that

support littoral warfare and the implications on SSN operations.

Pre-Hostility Employment of SSNs

The CINC should use every tool available to deter enemy aggression. SSNs can play a key role in deterrence if the potential adversary understands the threat. It is not enough to tell an adversary that submarines are operating within striking distance of his country. For deterrence to be effective, the enemy has to have a tangible appreciation for what SSNs could do at any time without warning. "The navy has to develop that mind set of possibility. Since submarines can't be seen, no one knows how many are there. That is the force multiplier. The primary role of the CINC during pre-hostilities is to get the word out."⁷ The CINC should determine, through knowledge of the adversary and his culture, what will "get his attention" and demonstrate that capability within the theater, to include exercises, port visits, and weapons delivery demonstrations.

Operational Intelligence vs Indications and Warning

Both during the pre-hostility phase and once hostilities breaks out, the CINC should gather as much operational intelligence as he can. The SSN is an ideal platform for monitoring the actions and determining the intent of a potential adversary. Operating as close to shore as the water depth will allow enables the SSN to intercept communications, observe operations and training and evaluate methods of operations and capabilities. The SSN's stealth and sustainment make it the a valuable tool for intelligence preparation of the battlefield.⁸

At the operational/tactical level, the SSN can provide valuable I&W to either the CINC, the CJTF, or both. This may be done concurrently with gathering operational intelligence, but it is important to recognize the difference in level of warfare. If tasked simultaneously, the SSN's mission must also be

prioritized so the flexibility is retained. If real time I&W is the priority, the SSN is being operated at the tactical level.

Tactical vs Operational ASW

If the enemy has a submarine force, it is important to *neutralize* that threat to the JTF operating in the littoral region. "A diesel submarine is the bogeyman in the closet of a 'Home Alone' youngster. With it comes fear of the unknown, of what might be. Even the oldest of diesel submarines, if not operated in a completely inept fashion, retains that most fundamental of submarine qualities: stealth."⁹ The difference in how the threat is neutralized represents the distinction between levels of warfare.

ASW is an aspect of Operational Protection that translates, at the CJTF level, to an offensive tactical task that is essential to give him the latitude to accomplish the operational objective. If the opponent has diesel submarines in littoral region, the CJTF wants to take them out.¹⁰ The SSN, in coordination with other ASW assets, is an ideal platform to contribute to this task. This represents *tactical* employment of the SSN. While the details of coordinated ASW are beyond the scope of this paper, it is important to note that the demands of tactical ASW limits the SSN's capability to perform other tasks. If the CJTF asks for SSNs to assist with ASW, the CINC should realize that in order to optimize the effectiveness of the SSN's contribution to the JTF, the SSN cannot be counted on for other operational functions. If the CINC has to send the JTF into the littoral region to accomplish the mission before the submarine threat is neutralized, it is appropriate to allocate the SSNs that are deemed necessary to conduct tactical ASW.

The CINC can direct ASW operations that can have an impact at the operational level. The threat can be neutralized by denying the enemy the

possibility of operating his submarines in the littoral region or by eliminating the submarines prior to bringing the JTF into the area. The enemy can be denied access by mining his ports, disabling his submarines along side the pier, or blocking his entrance to the littoral region from sea. If hostile submarines are already operating in the area, they must be localized, at a minimum, in order to eliminate the threat. SSNs can participate in any of these tasks, accomplishing *operational ASW* while simultaneously executing other aspects of littoral warfare for the CINC.

Operational Strike vs Tactical Strike

The JTF is capable of conducting tactical level strikes in support of the objective of landing expeditionary forces. For the most part, these tactical strikes take the form of air strikes and naval surface fire support. One contribution that SSNs can make to STW is Tomahawk land attack cruise missile (TLAM) delivery. In discussing the practice of having the CINC control the employment of TLAMs under most circumstances, Vice Admiral Cebrowski, a former CJTF explained:

"as the combat power of a weapon increases, the level at which the decision is made as to how and where to employ it should also go up. If the effect is intended to be strategic or operational in nature, strategic decision makers will make the judgment often weapon by weapon. *However* the time factor may cause the decision making to be pushed downhill."¹¹

If the CINC determines that the targets that the CJTF wants to strike should be attacked by TLAMs, he needs to stay involved with the process to ensure that maximum operational flexibility of his SSNs is retained, in light of the weapon carrying capability of the SSNs and the CINC's vision of subsequent tasking.

Depending upon geography and the distance from the shore of the aim point, the strike platform may not necessarily have to be in the littoral region to be effective. One advantage that SSNs have over other strike platforms is that

they can be positioned covertly to reach targets that are further inland. Additionally, with respect to the "time factor" discussed above, the SSN currently has a more flexible retargeting capability than any other TLAM platform. Because of this versatility the CINC may be advised to consider giving operational control of one or more SSNs to the CJTF for secondary strikes following battle damage assessment. Depending on the desired degree of connectivity, the SSNs conducting TLAM strikes would be limited to simultaneous tasks that could be accomplished by operating at periscope depth.

Mine Warfare

Covert mining is capability inherent to SSNs. Because of the ramifications at all levels of warfare, the national command authority (NCA) exercises control over mining. "The employment of mines in international waters or foreign territories (including territorial seas) is a hostile act, thus requiring NCA authorization."¹² It is reasonable to assume that a request to conduct offensive mining would come from the CINC. SSNs have to operate in the littoral region to conduct a mining operations. Joint Pub 3-15 states that SSNs are limited because of the relatively small number of mines that can be carried.¹³ The CINC should keep this perceived limitation in perspective as it only took twenty mines to close down Haiphong harbor during the Vietnam War.¹⁴

An ideal application for a mining mission from an submarine would be a to close off a harbor entrance. While it is true that the submarine is limited as to how close it could approach the harbor depending upon water depth, it is important to recognize that the submarine launched mobile mine (SLMM) is a self propelled weapon with an effective range of about seven miles. The submarine can remain in sufficiently deep water while reaching the harbors of most potential adversaries. Given its superior mobility, with a forward staging

area for additional mines, an SSN could be tasked with a larger minefield. While the SSN is executing a mining mission, the ability to conduct simultaneous tasks is extremely limited.

Delivery of Special Operating Forces

All SSNs are capable of covert insertion of SOF. Some are specially configured to be able to carry one or two platoons. SSN employment in SOF delivery should be made at the level appropriate with the desired impact of the mission as well as the source of the forces. If the forces are organic to the JTF and the mission has tactical level implications, it is appropriate to give the CJTF operational control of the submarine for the execution of the mission.¹⁵ Because of the overall capabilities and the potential impact, the CINC would be wise to retain operational control of those SSNs which are specially configured for SOF delivery.

Tactical Tasks or Maneuver Warfare at Sea?

The CJTF is concerned with ASUW at the tactical level of war. While destruction of enemy shipping may be a task, it is not the *objective* for littoral warfare. Although it may be a means to an end, ASUW is a tactical level task that can be accomplished by a variety of platforms. It is important to look at this task in combination with others that will lead to accomplishment of the mission in order to translate the concept of maneuver warfare on the land to naval forces. "Maneuver warfare doctrine creates favorable conditions for combat actions at sea in which one multiplies the greatest possible return for the effort expended."¹⁶ Maneuver warfare at sea can happen at all levels of war. A JTF is capable of conducting maneuver warfare, but *by itself, the SSN is a maneuver warfare platform*. When tasked by the CINC, the SSN can accomplish all the tactical level requirements of ASUW while having a profound effect at the

operational level of war. SSNs can keep enemy warships from operating within the littoral region with minimal expenditure of weapons. "A recent example of such a maneuver warfare effort by a navy is the sinking of the *Belgrano* during the 1982 Falklands conflict. As a result of one strike by a submarine, the Argentine Navy was stunned and much of it remained in port for the rest of the war."¹⁷ The sinking of the *Belgrano* had an impact at the theater strategic level of warfare! SSNs can conduct their full range of tasks independently when being controlled in this manner.

Findings and Recommendations

The Need for Flexible Doctrine at all Levels

No doctrine exists for the conduct of littoral warfare. Continued emphasis should be given to developing *flexible* doctrine that optimizes force employment in the littoral region. Navy doctrine should focus on the employment of the components of a naval expeditionary task force while Joint doctrine should focus on incorporating the maritime element into the overall package. Both levels need to deal specifically with SSNs in order to best exploit their capabilities at the theater level.

Flexibility of doctrine is crucial in order to get the most from all of our forces. Admiral (Ret) K. R. McKee was Commander Task Force 69, in charge the U.S. submarines in Mediterranean in October of 1973. His description of how procedures were developed to maximize the flexibility for the CINC and the CVBG to employ SSNs on short notice reflects insight that ought to continue to be applied today. "The reason the Navy was successful in adapting during World War II, and the reason that the whole concept of SSN support at the tactical and operational level worked during the Yom Kippur War was that thoughtful men were thinking, not because of a step by step child's guide."¹⁸ Rigid, "cook book"

procedures will reduce the effectiveness of the SSN's stealth, mobility, and firepower, resulting in a significant decrement in its contribution to the operational level of war.

Operations Inside Territorial Waters

The volume of meaningful intelligence that SSNs can collect increases dramatically if they are operated close to shore. Additional communications and radar signals can be intercepted. The conduct I&W is greatly enhanced as a result of the improved capacity to receive "tipper" information as well as the ability to see more of what is going on. In order to operate SSNs within a potential adversary's territorial waters, the CINC needs to be able to justify the risk vs gain to the NCA. It should not be assumed that approval to conduct covert operations inside another country's territorial waters will be granted and the CINC's planners need to consider that eventuality as the operational scheme for pre-hostilities is developed.

Once hostilities break out, it would be reasonable to assume that approval to operate in the adversary's waters would not be difficult to obtain. The CINC still needs to conduct an assessment of risk vs gain for each task that would require an SSN to penetrate territorial seas.

Operational Control of SSNs

The practice of giving operational control of SSNs to a properly staffed JTF can improve the tactical flexibility of the task force, but limits the operational level impact of the SSNs involved. The CJTF should see clear advantages to having operational control of one or more of the SSNs, depending upon the size of the area in which the JTF must operate. By controlling where the SSNs go within the littoral region, he maximizes his tactical flexibility. What the CJTF gains tactically, however, the CINC loses operationally.

If the CJTF controls the waterspace within the littoral region, the CINC must then coordinate with the CJTF *and* the submarines under the operational control of the CJTF to move other submarines in and out of the region. The CINC's submarine force becomes less significant operationally, or at least harder to reach out and touch for operational tasking. As a result of the complications associated with the coordination requirements, the overall effectiveness of all the SSNs in the area is reduced. If the CINC anticipates that he will need to task SSNs with operational level assignments while they are supporting a CJTF, thought should be given to retaining operational control while giving tactical control to the CJTF. That way, the CINC retains control over when he can count on communicating with the SSNs, thereby giving him the flexibility that he needs. The drawback is that the CJTF does not get the responsiveness from the SSNs that he may want.

Under most circumstances, the CINC should carefully consider all anticipated operations before giving operational control of more than one SSN to a CJTF. Additionally, the area that is given to the CJTF to control should be limited to that which is necessary to accomplish his tactical objectives so that the CINC can do whatever else needs to be done within the littoral region.

Retaining Blue Water Capability

SSNs were operationally conceived as blue water platforms. Operating independently, with broad tasking and priorities from the operational commander has been their stock in trade. The inherent stealth, combined with the variety of firepower that can be carried and the ability to conduct sustained operations at sea, make SSNs, as a force, an operational asset. The challenges that are faced when integrating SSNs into a JTF at the tactical level, including communications, coordination, and procedures to prevent blue-on-blue

interactions are not insurmountable. CJTFs continue to improve the capacity to employ SSNs at the tactical level. This added flexibility enhances the value of SSNs, but should not become their primary employment.

Fighting the littoral war is not be the only concern that the CINC has with respect to maritime operations, but that is where the emphasis has been placed while preparing U.S. naval forces to deploy. The CINC must use his SSNs to fill in the gaps that his naval forces lack in blue water warfare. This approach will provide the CJTF the flexibility and latitude to accomplish the expeditionary force mission in the littoral region.

The National Research Council committee tasked to examine the Navy and Marine Corps concept of regional conflict in the 21st Century cited protection of forces as one of the weaknesses, both technologically and doctrinally, that the Navy and Marine Corps faces. They were specifically concerned with the "vulnerability of the logistic ships to anti ship cruise missiles and quiet submarines."¹⁹ These concerns, which fall into the area of Operational Protection can be tasked by the CINC to his SSNs without disrupting the integrity or unity of the JTF. During Operation Desert Storm, SSNs in the Mediterranean Sea provided the blue water capability that was necessary to protect shipping and naval assets going to the Gulf.²⁰

Prevention of Mutual Interference and Waterspace Management

Control of the water in which submarines are operating in order to prevent mutual interference (keeping objects from running into each other) and waterspace management (when and where anti-submarine weapons may be employed to prevent blue-on-blue attacks) can become challenging and could impede the CJTF's flexibility. Depending on the scope of the conflict and coalition involvement, the additional complexities that the littoral

environment imposes with enclosed seaways and potentially shallow water makes the problem even harder.

Add to this the potential for simultaneous operations of remotely piloted vehicles, towed sonar arrays and transducers, and the intensity level that forces experience when operating in the vicinity of a potential submarine threat, and the difficulties seem almost insurmountable. Consideration should be given to a joint forces undersea component commander concept (similar to JFACC).²¹ This would serve to simplify undersea operations . While it may be true that a parallel to the air tasking order would be seen as severely limiting the flexibility of an individual SSN and perhaps the naval forces in general, this probably reflects more of a cultural paradigm than a legitimate concern.²² This concept would be particular useful in situations where the CINC wants to bring SSNs into the area to perform an operational level function while the CJCS is employing other submarine assets within the littoral region at lower levels of warfare.

CINC Involvement with SSN Deployment Preparations

Because the SSN is an operational level platform whose strength lies in the ability to conduct *sustained independent operations at sea*, the CINC needs to stay involved with the deployment preparations, certifications, and weapons loads that his SSNs carry. Careful consideration needs to be given to the specific missions that that CINC needs, and the SSN's ability to deliver must be tailored accordingly. The CINC needs to clearly communicate expectations for SSN employment to the type commanders in order to ensure that the ships arrive in theater properly trained and equipped to conduct the operations that may be required.

The CINC currently controls the deployment and stockpiling of TLAMs in

theater. Because of the operational level tasking that could be given to an SSN (Operational Protection and Operational Fires), the other *tactical* weapons that SSNs carry (torpedoes and anti-ship missiles) become more significant. The limited numbers of these weapons that a single SSN can carry further amplifies the importance of the level at which these weapons inventories are monitored. Consideration should be given to controlling stockpiles of other submarine launched weapons in addition to TLAM at the theater level in order to better accomplish operational level warfare tasks.

Command, Control, Communications, Computers, and Intelligence

Inter operability with other forces is important. SSNs retain a significant operational level capability through independent operations controlled at the theater level, however, their value is enhanced through improved connectivity. Further initiatives to improve the C4I capabilities of SSNs and inter operability with other forces at all levels will only serve to improve their utility.

The practice within the submarine force of only preparing the SSNs assigned to a JTF for those deployments should be revisited. While most SSNs have the C3 capabilities that these deployments demand, few know how to properly employ them and lack familiarity in coordinated operations. The "art" of battle group connectivity needs to be in every SSN's tool kit while retaining the emphasis on independent, sustained operations in support of the CINC.

Conclusion

There will always be a demand for SSNs by war fighters that have an appreciation for their capabilities. They have become very attractive platforms for a variety of missions, and in the post cold-war era, the submarine force has gone out of its way to demonstrate the versatility that an SSN offers.

One SSN is not a force multiplier. The value lies in the capabilities, as a

force, to have an impact within the theater of operations. In the initial stages of a crisis, the SSNs can get there faster than any other naval asset. Because of this, the theater commander has to have a plan to operate these ships as a force. If this is ignored in favor of the SSN's formidable tactical capabilities, the SSN will become just another platform. The operational worth of SSNs is enough to justify their continued existence. Proper employment of SSNs by the CINCs will maintain the focus and vitality of these *maneuver warfare platforms*, while enhancing littoral warfighting capability and preserving the blue water sea control capabilities that may now just be taken for granted.

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